



COOL-SEASON GRASSES

ESTABLISHING AND MAINTAINING PLANTINGS FOR
EROSION CONTROL, WATER QUALITY, AND WILDLIFE HABITAT

Conservation Practice Job Sheet

Natural Resources Conservation Service (NRCS)

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INTRODUCTION

Cool-season grasses are plants that grow best in the spring and fall when soil and air temperatures are cooler. They generally go dormant in mid-summer. Cool-season grasses, either alone or in combination with legumes and/or wildflowers, can be planted to reduce soil erosion and sedimentation, improve water quality, provide wildlife habitat, and beautify an area. Tall fescue, red fescue, ryegrass, orchardgrass, bluegrass and timothy are examples of commonly planted cool-season grasses.

This job sheet provides instructions for planting and maintaining cool-season grasses in good condition so they can serve their intended purpose. Using proper planting and management techniques, especially during the establishment years, will significantly improve plant health, reduce weed problems, and increase the likelihood of success.

SITE PREPARATION

Before planting, it is essential to reduce competition from other vegetation that may be present on the planting site, such as other grasses or weeds. The type and density of the existing vegetation will determine how much pre-planting control is needed.

It's important to allow adequate time to complete this process. If significant quantities of noxious or aggressive weeds or invasive plants are present, be aware that you may need a year or two to control them before you can plant, especially if you will be planting in a large area.

Sites without Existing Vegetation

If the cool-season grasses will be planted into a clean, relatively weed-free area (such as cropland that was planted during the previous growing season), then competition from existing vegetation should not be a concern. However, a cover crop or nurse crop may be needed for erosion control and/or to reduce future weed competition (see page 2).



Take into account any noxious or aggressive weeds on the site that might have been suppressed (but not killed) with previous herbicide applications. If live rootstocks are present, these weeds may be very difficult to kill in a new planting without destroying the desirable plants. If you think you may have a weed problem, or if you don't know the site's weed history, it may be prudent to wait one full growing season to see what comes up. Use an appropriate herbicide to treat weeds if they occur, then plant the cool-season grasses.

Sites with Existing Vegetation

If cool-season grasses are going to be planted into existing vegetation (for example, into other grasses or weeds), you will need to reduce competition before planting. For sites that need extensive preparation, much of the work can be done during the fall prior to spring planting, or in late spring before a fall planting.

Mow or brush hog the field or planting site. Then either treat the area with an appropriate herbicide or cultivate the planting area to reduce competition.

Using herbicides. Choose a non-selective herbicide such as glyphosate (for example, Roundup, KleenUp). A selective herbicide such as 2,4-D may be used

Land owners and managers please note: *If you received cost-sharing for your grass planting, be sure to check with your funding agency/organization for specific maintenance or management requirements.*

instead, depending on the species of weeds you are trying to control. Follow all label directions when using herbicides, and consider herbicide persistence (carryover) as it may affect new plantings.

For extremely vigorous turf or weeds, you should plan to make one application of herbicide in early fall, followed by another the next spring before planting. Or, if you make the first herbicide application in the spring, you should plan to make a second application a few weeks before planting, if needed.

Do not plant the cool-season grasses until the competing vegetation is sufficiently controlled. It is much easier to control the competition before planting than afterward. Cultivation of the planting area may be needed following herbicide treatment if the dead plant matter is very thick and will be difficult to plant through. You may also need to re-spray after cultivation if weed seeds brought to the surface germinate.

Using cultivation only. If you do not want to use herbicides, then you will need to cultivate the field or planting site. Cultivation is usually less effective than herbicides for killing heavy sod or persistent weeds. Also, bare ground produced by cultivation may be subject to erosion and can provide a good seedbed for more weed growth. If necessary, use a cover crop or nurse crop to control erosion and help suppress weeds.

Herbicide Carryover

Carryover from herbicide treatments (recently applied or from prior years) can pose a threat to new plantings. Seedlings are particularly sensitive to herbicide carryover. Herbicides such as Basagran, Blazer, Poast, Plateau and Roundup have low persistence and generally do not pose a risk for carryover. Herbicides such as Atrazine, Preview, Canopy, Classic, Lorox Plus, Command, Scepter and Trellan have medium to high persistence and can pose a risk of carryover. The persistence of herbicides is directly affected by factors such as soil pH and moisture. To assess risks before planting, read the herbicide label or contact the manufacturer for specific information on persistence.

PLANTING

Planting Dates

Recommended planting dates typically range from late winter to late spring, and late summer to mid-fall. Most cool-season grasses benefit from planting in early fall, which allows two growing periods (fall and the next spring) for establishment of roots before summer. Summer heat and the lack of moisture is very stressful for cool-season grasses. Their survival is dependent on a well-developed root system.

Before deciding on the best planting date for a site, consider the need for weed control vs. the likelihood of having sufficient moisture for germination and growth of grass seedlings. Where cool-season weeds are likely to be a problem, planting in mid to late spring will allow more time for weed control before planting. On droughty sites, plantings made during late winter to early spring, or mid to late fall, are more likely to have the soil moisture necessary for seedling establishment.

To obtain recommended planting dates for your area, contact your local NRCS Field Service Center.

Seed Availability

Seeds of many species may be available throughout the year, but supplies are usually best from late winter to early spring, and early in the fall. Don't wait to buy seed until the day you are ready to plant. Local seed suppliers may not always have the species or varieties you want. You may need to order your seeds by mail or on the Internet. Contact your local NRCS Field Service Center if you need the names of suppliers. Store all seed in a cool dry place before planting.

Using a Cover Crop or Nurse Crop

If erosion is a concern, use a cover crop or nurse crop of 20 to 40 pounds/acre of oats, barley, or wheat. Oats are the preferred nurse crop because they are less competitive than the other small grains. To use as a cover crop, plant the small grain at the higher rate in the fall prior to a spring planting of cool-season grasses, or in the spring before a fall planting of cool-season grasses. Plant the small grain at the lower rate when used as a nurse crop along with the cool-season grasses.

If erosion is not a concern, a cover crop or nurse crop can be planted at the lower seeding rate to help suppress weeds.

Planting Methods

Generally, the best method for establishing cool-season grasses is to use a no-till planter to drill seed into existing cover (for example, into a cover crop, crop residue, chemically killed weeds or grasses, etc.). No-tilling into undisturbed soil greatly reduces the germination of annual weeds and minimizes erosion, especially where slopes are 6 percent or more.

No-till planting into plant residue. On sites where existing vegetation was killed with herbicide or there is crop residue from previous years, no-till the cool-season grasses directly through the dead residue. Add a nurse crop as needed to control erosion and/or suppress weeds. If you must work up the soil because the residue is too thick to plant through, it is strongly recommended that you use a cover crop or nurse crop.

No-till spring planting into a fall cover crop. In the fall, prepare a seedbed by working the soil with a plow, disk, or similar equipment. Continue tillage until a reasonably uniform seedbed is prepared. Then plant a cover crop. In the spring, no-till the cool-season grass seed into the cover crop. (If the cover crop is tall, mow it first and no-till into the stubble.) If aggressive or noxious weeds have developed since the previous fall, use an appropriate herbicide to treat them before planting.

Broadcast planting. If necessary, cool-season grasses can be planted by broadcasting onto a conventionally prepared seedbed. Broadcast seed onto a well-prepared, firm seedbed. Grasses with small seeds may need to be mixed with a filler (for example, sawdust, finely ground corn, or slightly moistened peat moss) to achieve an even distribution of seed. Incorporate the seed into the soil 1/8 to 1/4-inch deep by cultipacking, raking, or dragging. Broadcasting is usually less successful than no-tilling because it is more difficult to get good seed placement in the soil.

Lime and Fertilizer

Most cool-season grasses prefer a pH of 5.5 and above. If legumes are included in the planting, a pH of at least 6.0 is desirable. A pH of 6.0 to 6.5 is ideal for most plantings.

Apply lime and fertilizer if needed based on soil test results. The use of commercial fertilizer and other forms of plant nutrients must be in compliance with Maryland nutrient management regulations, as applicable. Fertilizer applied without a soil test may result in an inefficient quantity of nutrients for plant establishment, or could result in overapplication of nutrients leading to potential water quality problems and excessive weed growth. For additional information, consult with your local Maryland Cooperative Extension specialist or certified nutrient management consultant.

PROTECTING PLANTS

Use fences and other exclusion devices to control livestock and human access to the planting, at least until it is well established. Many types of fences and exclusion devices are available. Contact your local NRCS Field Service Center for recommendations for your site.

MAINTENANCE AFTER PLANTING

Cool-season grasses usually take one to two years to become fully established. During that time, weeds can be a major problem.

The goal of weed control is to reduce (but not eliminate) competition from broadleaf and grass weeds such as mare's tail, ragweed, dandelion, foxtail, crabgrass, etc. Many of these plants provide good food and wildlife cover, but if they get too tall and dense, they will shade out the cool-season grass seedlings. Don't wait until weeds are four feet tall before trying to control them. Mowing them at that stage will produce so much plant litter that you may smother the seedlings.

Planting Year

Do not let weeds get taller than 18 inches. Control weeds by mowing or by treating with an appropriate herbicide. Mow at a height of 4 to 6 inches or just above seedling height.

Selective herbicides can be sprayed over the planting to control specific weeds. Herbicides are most effective when weeds are young and actively growing. Be sure to read and follow all label directions. A broadleaf herbicide such as 2,4-D can be used to kill weeds in a grass planting, but it will also kill most legumes and wildflowers in the stand. Also, 2,4-D may seriously damage grass seedlings if they are not past the 4 to 5 leaf stage. Do not apply herbicides on windy days when spray drift can damage nearby plantings.

Control all noxious weeds as required by Maryland state law.

Second Year After Planting

Inspect the planting in early spring. If weeds persist and comprise more than 25 percent of the stand, either treat with an appropriate herbicide or plan on periodically mowing the area to a height of 6 to 8 inches. Throughout the growing season, continue to mow as needed to keep weeds under control. Always avoid damaging the plantings during mowing. A good rule of thumb is to cut off no more than one-third of the grass leaf area at one time.

Third Year and Beyond

The cool-season grasses should be well established by this time. Established stands do not require frequent attention, but most need occasional management to rejuvenate the stand and to keep trees and shrubs from invading.

The type and frequency of management will depend on the purpose of the planting. For optimum wildlife habitat, all management practices should be conducted outside of the primary nesting season for birds and ground-nesting wildlife (April 15 - August 15).

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For optimum water quality benefits, you should maintain a dense stand of grasses and, where feasible, use management practices such as haying and flash grazing to remove nutrient-rich top growth from the site.

Mowing. Mowing is typically used to control woody growth. For optimum wildlife benefits, mow on a 2 to 3 year rotation, so that only 1/3 to 1/2 of the planting is mowed each year. The remaining unmowed areas will provide year-round wildlife food and cover. The best time to mow is late winter to early spring, preferably in March. This will allow grasses to provide protective cover for wildlife during the winter. On sites where soils are usually too wet in the spring, you can mow in the fall when soils are dry. Do not mow during the primary nesting season (April 15 - August 15).

If stands are dense and have large quantities of top growth, cuttings should be removed if at all possible. If the cuttings are not removed, they can smother new growth.

In order to allow a sufficient recovery period before winter dormancy, mowing should be done no later than four weeks before the last average killing frost date for the area. Mowing can also be done after the first killing frost when plants are dormant.

Grazing. Livestock can be used to manage a cool-season grass stand, even if the stand was not primarily intended for livestock forage. Cool-season grasses are best grazed during the spring and fall when they are actively growing. Initial grazing should not begin until the plants are 8 to 10 inches tall. Graze down to 3 inches, and allow regrowth to 8 inches before grazing again. The final grazing height should be about 4 inches to allow sufficient recovery before dormancy.

To minimize adverse impacts on wildlife, graze only 1/3 of the stand each year. When properly managed, grazing livestock have minimal impacts on nesting birds and other wildlife. Therefore, grazing is acceptable during the nesting season, *provided that the area is not overstocked or overgrazed.*

Overseeding legumes. As a grass-legume planting matures, the legume component tends to decline due to natural thinning, disease, winter injury, and heat stress. Legumes that were originally planted with cool-season grasses may be re-established by overseeding the grasses with the desired legume seeds.

Successful planting methods range from using a no-till drill to broadcast seeding. Use a no-till drill without tillage to place seed 1/2 to 3/4 inch deep, with minimal disturbance of existing plants. If broadcast seeding methods are used, the seed should be pressed into the soil with a smooth or ring-type roller, or by pulling a drag or harrow over the seeded area to enhance seed-soil contact. Frost seeding is another method of re-establishing legumes. Broadcast the legumes over the grass in late winter or very early spring when the ground is still frozen. Freezing and thawing, in combination with rainfall, will work the seed into the soil surface.

Weed control. If it becomes necessary to control weeds during the nesting season (for example, noxious weeds), contact your local weed control specialist concerning recommendations for spot-treating the weed problem. Noxious weeds must be controlled at all times according to Maryland state law.

For more information about controlling specific weeds, contact your local office of Maryland Cooperative Extension; the Maryland Department of Agriculture, Weed Control Section.

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PLANTING PLAN for COOL-SEASON GRASSES					
Name:		Farm No.:		Tax Map:	
		Tract No.:		Parcel:	
Address:		Primary Purpose(s): <input type="checkbox"/> Erosion Control <input type="checkbox"/> Water Quality <input type="checkbox"/> Wildlife Habitat for:		Recommended Planting Date(s):	
Assisted by:					
Date:					
Planting Area (Field #, Firebreak, etc.)	Acres	Species	Cultivar (if any)	Seeding Rate (lbs/ac)	Total Quantities Needed
Nurse/Cover Crop		Oats, Barley, or Wheat (<i>oats are preferred because they are less competitive</i>)		20 - 40	
Additional Recommendations/Notes:					